



5th European Summer School on Industrial Biotechnology:

Functional metagenomics: from nature to biochemical functions

Hamburg, 6-10th July, 2020

The European Summer School on Industrial Biotechnology (ESSIB) is organized by the University of Milano-Bicocca (Department of Biotechnology and Biosciences) and, the University of Stuttgart (Institute of Biochemistry and Technical Biochemistry). ESSIB addresses PhD students and postdocs, preferentially from European laboratories, and will take place every year in a different country and with a different focus. ESSIB is a complete educational program based on lectures, practical laboratory experience, and contacts with companies active in the field.

The 5th ESSIB will be hosted by the University of Hamburg, with focus on **Functional metagenomics: from nature to biochemical functions**.

99% of all microorganisms cannot be cultivated and thus are not easily accessible for biotechnology. Metagenomics is a key technology to explore the not-yet-cultivated microbes for bioindustries. Since the onset of metagenomics 20 years ago, numerous novel biocatalysts and other valuable biomolecules have been mined from diverse metagenomes. While modern sequencing technologies have given us fast and reliable insight into the genomes of complex microbial communities, mining, expressing proteins, and delivering them to bioindustries is still a major challenge and often takes several years. The course will summarize current knowledge in the field of functional and applied metagenomics. It will point out bottlenecks and challenges in the field of enzyme mining, and it will give insights into to novel technology developments using functional and *in silico* mining.

Course description

Intensive one-week course from Monday to Friday. Lectures and laboratory courses will be provided by local and invited speakers.

Confirmed lecturers

- Garo Antranikian (TU Hamburg)
- Don Cowan (University of Pretoria, South Africa)
- Rolf Daniel (University of Göttingen, Germany)
- Manuel Ferrer (CSIC, Madrid, Spain)
- Ute Hentschel Humeida (Geomar, Kiel)
- Karl-Erich Jäger (University of Düsseldorf, Germany)
- Rainhard Koch (Bayer, Leverkusen, Germany)
- Stephan Kolkenbrock (Altona Diagnostics)
- Andreas Liese (TU Hamburg)
- Jürgen Pleiss (University of Stuttgart, Germany)
- Matthias Rarey (University of Hamburg, Germany)
- Ruth Schmitz-Streit (University of Kiel, Germany)
- Björn Voß (University of Stuttgart, Germany)
- Alexander Wentzel (SINTEF, Trondheim, Norway)

Major topics:

1. Mining the soil metagenome
2. Mining the sea
3. Metagenome enzyme biotechnology
4. Structures and functions from metagenomes
5. Upscaling and industrial applications

Hands-on laboratory courses

1. DNA isolation, amplification, and cell-free expression
2. Insights into complex biofilm metagenomes

Fees and registration

The policy of our Summer School is to keep fees low in order to enable the participation of young researchers. The course fee is 250 €, including lunch and workshop dinner. A limited number of fellowships will be available to participants without traveling funds. Please inquire by mail.

To apply, please send by **March 31, 2020**

- a CV including current research topics
- a motivation letter
- a supporting letter by your supervisor to essib2020.min@uni-hamburg.de.

We will ask you to register and pay for the fees after this deadline.

Organisers and location

Wolfgang Streit, Jennifer Chow
Department of Microbiology and Biotechnology
University of Hamburg

More details at: <http://www.ESSIB.eu>

